

Before the  
Federal Communications Commission  
Washington, D.C. 20554

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In the Matter of )  
 )  
Review of Part 87 of the Commission's Rules ) WT Docket No. 01-289  
Concerning the Aviation Radio Service )

**SECOND REPORT AND ORDER AND  
SECOND FURTHER NOTICE OF PROPOSED RULE MAKING**

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By the Commission:

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## I. INTRODUCTION AND EXECUTIVE SUMMARY

1. This *Second Report and Order and Second Further Notice of Proposed Rule Making* in WT Docket No. 01-289 addresses a number of important issues pertaining to the Aviation Radio Service. The Federal Communications Commission (Commission or FCC) initiated this rulemaking proceeding in 2001 to ensure that Part 87 of the Commission's Rules<sup>1</sup> remains up-to-date and continues to further the Commission's goals of accommodating new technologies, facilitating the efficient and effective use of the aeronautical spectrum, avoiding unnecessary regulation, and, above all, enhancing the safety of flight.<sup>2</sup> In October 2003, the Commission adopted a Report and Order (*Report and Order*) and Further Notice of Proposed Rule Making (*FNPRM*) in this proceeding, amending several Part 87 Rules and requesting comment on possible further amendments to Part 87.<sup>3</sup> The instant *Second Report and Order* builds on that earlier effort, and resolves issues raised in the *FNPRM*. The rule amendments adopted herein further the underlying goals of this proceeding, most significantly the enhancement of aviation safety, and in many cases these rule amendments also promote public safety generally and improve our homeland security. The instant *Second Further Notice of Proposed Rule Making* invites comment on other issues regarding aviation radio, in keeping with our ongoing commitment to periodically review and, as needed, revise Part 87 in light of relevant developments.

2. In this *Second Report and Order*, we:

- authorize the use of Universal Access Transceiver (UAT) technology on the frequency 978 MHz;
- decline to adopt any immediate changes to the Part 87 rules governing the Aeronautical Mobile Satellite (Route) Service (AMS(R)S)<sup>4</sup> with respect to technical flexibility, the licensing of AMS(R)S in additional frequency bands under Part 87, or priority and

<sup>1</sup> 47 C.F.R. § 87.1 *et seq.*

<sup>2</sup> See Review of Part 87 of the Commission's Rules Concerning the Aviation Radio Service, *Notice of Proposed Rule Making*, WT Docket No. 01-289, 16 FCC Rcd 19005 (2001) (*NPRM*).

<sup>3</sup> See Review of Part 87 of the Commission's Rules Concerning the Aviation Radio Service, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 01-289, 18 FCC Rcd 21432 (2003) (*Report and Order* and *FNPRM*, respectively).

<sup>4</sup> AMS(R)S is a radio service providing communications via satellite between aircraft earth stations and land stations or other aircraft earth stations. See The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, *Report and Order*, IB Docket No. 99-81, 15 FCC Rcd 16127, 16154 ¶ 61 (2000). Aircraft earth stations are mobile earth stations in the aeronautical mobile-satellite service that are located on board an aircraft. See 47 C.F.R. § 87.5.

preemptive access for AMS(R)S communications vis-à-vis public correspondence communications and other non-safety-related Mobile Satellite Service (MSS) communications;<sup>5</sup>

- remove all of the former Civil Air Patrol (CAP) channels from the table of frequencies available for assignment under Part 87;
  - remove allocations for radionavigation in the 14000-14400 MHz band;
  - streamline the listing of high frequency (HF) channels in the table of frequencies available for assignment under Part 87;
  - provide the Federal Aviation Administration (FAA) with greater flexibility in the use of air traffic control (ATC) frequencies;
  - decline to adopt rules that would authorize a new type of emergency locator transmitter (ELT) designed to operate on the frequency 121.5 MHz;
  - adopt rules permitting use of an alternative station identification format by aircraft that are being moved by maintenance personnel from one airport location to another;
  - eliminate the rule authorizing the assignment of FCC control numbers to ultralight aircraft for station identification; and
  - decline at present to make any rule changes pertaining to the Plan for the Security Control of Air Traffic and Air Navigation Aids (SCATANA).
3. In the instant *Second Further Notice of Proposed Rule Making*, we:
- invite further comment on technical standards and regulatory provisions for AMS(R)S in the 1.6 GHz, 2 GHz, and 5 GHz frequency bands, including whether to revise the AMS(R)S technical standards to accommodate additional satellite systems and whether to accord priority and preemptive access to AMS(R)S communications in these bands;
  - propose to delete a regulatory provision which permits limited use of the VHF band for AMS(R)S communications;
  - invite comment on whether the Commission should consider proposing rules that would require a transition to 8.33 kHz channelization in the aeronautical enroute service;
  - invite comment on whether the Commission should reduce the number of frequencies designated for Flight Information Services – Broadcast (FIS-B);
  - propose to codify the terms of special temporary authorizations (STAs) permitting the use of specified frequencies for air-to-air communications in Hawaii and in the Los Angeles area;
  - propose to clarify the circumstances under which an airport is limited to a single

<sup>5</sup> Under consideration in this proceeding is whether AMS(R)S stations operating in the 1610-1626.5 MHz (1.6 GHz), 2000-2020 MHz (2 GHz), and 5000-5150 MHz (5 GHz) bands should be licensed under Part 87, and, if so, whether priority and preemptive access should be accorded to AMS(R)S in these three frequency bands. As set forth, *infra*, we seek further comment on AMS(R)S issues in the *Second Further Notice of Proposed Rule Making*.

aeronautical advisory station (unicom);

- invite comment on whether the Commission should permit the assignment and transfer of control of aircraft radio licenses; and
- invite comment on whether the Commission should phase out its authorization of ELTs designed to operate on 121.5 MHz.

## II. BACKGROUND

4. As recounted in the *Report and Order*, the Commission has regulated the Aviation Radio Service since the agency's inception in 1934, and now shares regulatory oversight responsibilities in this area with the FAA.<sup>6</sup> However, prior to the initiation of this WT Docket No. 01-289 rulemaking proceeding, a comprehensive review of the Commission's Rules governing the Aviation Radio Service had occurred only once, in 1988.<sup>7</sup> The Commission launched such a top-to-bottom review of the Aviation Radio Service with the adoption of the *NPRM* in October 2001. Based on comments received in response to the *NPRM*, the Commission amended a number of Part 87 rules two years later in the *Report and Order*. For example, in the *Report and Order* the Commission (a) updated certain technical requirements for AMS(R)S equipment; (b) permitted the certification of dual channel spacing transceivers to accommodate aircraft operating in countries that employ 8.33 kHz channel spacing as well as in countries, such as the United States, that employ 25 kHz channel spacing; (c) extended the license terms of all non-aircraft Aviation Radio Service stations from five to ten years; (d) extended the construction period for unicom<sup>8</sup> and radionavigation land stations<sup>9</sup> to one year; (e) authorized use of the Differential Global Positioning System (DGPS)<sup>10</sup> in the 108-117.975 MHz and 1559-1610 MHz bands on a non-developmental basis; (f) required DGPS receivers to meet minimum interference immunity requirements; (g) modified the licensing process for unicom<sup>8</sup> to avoid mutual exclusivity; and (h) retained the rule specifying that there may be only one aeronautical enroute station licensee per location,<sup>11</sup> while clarifying

<sup>6</sup> See *Report and Order*, 18 FCC Rcd at 21435-36 ¶ 5.

<sup>7</sup> See *Reorganization and Revision of Part 87 Governing the Aviation Services, Report and Order*, PR Docket No. 87-215, 3 FCC Rcd 4171 (1988).

<sup>8</sup> Unicom stations are used to provide safety-related and other information to aircraft, primarily general aviation aircraft. Unicom transmissions are limited to the necessities of safe and expeditious operation of aircraft, including runway conditions, types of fuel available, wind conditions, weather information, dispatching, and other necessary safety information. However, unicom stations may also transmit, on a secondary basis, information pertaining to the efficient portal-to-portal transit of an aircraft, such as information concerning available ground transportation, food, and lodging. Unicom<sup>8</sup> must provide impartial information concerning available ground services, and must provide service to any aircraft station upon request and without discrimination. See 47 C.F.R. § 87.215.

<sup>9</sup> Radionavigation land stations are land stations that assist with navigation using radiodetermination. See 47 C.F.R. § 87.5. Radiodetermination is the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation of radio waves. *Id.*

<sup>10</sup> DGPS is a technological advancement in the Global Positioning System (GPS), a global radionavigation system utilizing a constellation of twenty-four satellites to provide military and civilian users with real-time location, velocity and timing information. DGPS improves the positioning accuracy that can be obtained by GPS receivers by adjusting for positioning errors caused by, for example, signal bounce or signal noise. DGPS provides this enhanced accuracy through the use of fixed transmitting stations, which calculate differences in known locations with the position the GPS satellite system is indicating, and send this "differential" information via radio link to mobile units. See *Report and Order*, 18 FCC Rcd at 21456 ¶ 50.

<sup>11</sup> Aeronautical enroute stations are used for air-ground operational control communications to aircraft along domestic or international air routes, and may not be used for public correspondence. See 47 C.F.R. § 87.261(a). Airlines and other companies that maintain fleets of aircraft use these stations to satisfy certain FAA requirements. In the case of large trunk air carriers, these stations are used for maintaining reliable communications between each

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the licensee's obligation to provide access to the spectrum on a reasonable, nondiscriminatory basis.<sup>12</sup>

5. The Commission deferred action on certain other matters that were discussed in the *Report and Order*. For example, the Commission declined to immediately authorize the use of the 1.6 GHz and 5 GHz bands for AMS(R)S under Part 87, reasoning that it should not resolve the intertwined issue of whether it should mandate priority and preemptive access for AMS(R)S in those bands until the resolution of related AMS(R)S issues in another proceeding.<sup>13</sup> The Commission also took no action to address its concerns pertaining to the assignment of control numbers for aircraft stations operating on ultralight aircraft because, given the absence of comments on the issue, there was no basis in the record for taking any remedial action.<sup>14</sup> The Commission accordingly adopted the *FNPRM* to augment the record on such issues, and to invite comment on other matters that had been brought to the Commission's attention subsequent to the adoption of the *NPRM*.

6. The Commission specifically requested comment in the *FNPRM* on whether it should (a) authorize the use of UAT technology on the 978 MHz frequency; (b) permit AMS(R)S licensees to utilize any emission type of their choosing in aeronautical spectrum that is not shared with other services, and eliminate all requirements specific to data rates and modulation types; (c) accommodate the use of non-geostationary satellite networks for AMS(R)S; (d) broaden the AMS(R)S rules to better accommodate non-Inmarsat satellite systems; (e) adopt additional technical requirements for AMS(R)S to protect microwave landing systems (MLS) or for other reasons; (f) identify new uses for the frequencies formerly reserved for the CAP; (g) remove the radionavigation allocation in the Ku-band; (h) expand the availability of ATC spectrum for ground control communications; (i) codify the terms of a waiver permitting certification and use of a back-up safety device designed to supplement conventional 121.5 MHz ELTs; (j) codify the terms of a waiver authorizing a special station identification format to be used by aircraft being operated by maintenance personnel from one location in an airport to another location in the airport; (k) terminate the assignment of FCC control numbers to aircraft stations on ultralight aircraft; and (l) make changes to regulatory provisions pertaining to SCATANA.<sup>15</sup> We discuss these issues in the instant *Second Report and Order*.<sup>16</sup> In the *Second Further Notice of Proposed Rule Making*, the Commission seeks to augment the record on some of these issues and invites comment on possible additional rule changes that would update and streamline Part 87. These are issues that were raised in comments to the *FNPRM* or in a separate petition for rulemaking, or that have otherwise come to our attention and appear to have some merit.

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aircraft and the appropriate dispatch office. In the case of small airlines and large commercial aircraft operations, aeronautical enroute stations are used for maintaining flight-following systems. See 14 C.F.R. §§ 121.99, 121.125.

<sup>12</sup> See *Report and Order*, 18 FCC Rcd at 21434 ¶ 2, 21436-67 ¶¶ 6-75.

<sup>13</sup> *Id.* at 21440-41 ¶¶ 15-16, citing Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise Update the Rules in this Frequency Range, *Notice of Proposed Rule Making*, ET Docket No. 02-305, 17 FCC Rcd 19756 (2002) (*Above 28 MHz NPRM*).

<sup>14</sup> See *Report and Order*, 18 FCC Rcd at 21466 ¶ 72.

<sup>15</sup> See *FNPRM*, 18 FCC Rcd at 21467-76 ¶¶ 76-92.

<sup>16</sup> See Appendix A for a list of the parties submitting comments and/or reply comments in response to the *FNPRM*. The NTIA Reply Comments were filed after the closing of the comment period. On our own motion, we accept the late-filed NTIA Reply Comments as part of the record in the interest of having as complete a record as possible upon which to base the decisions herein. Only one commenter, ARINC, filed both comments and reply comments, and we therefore refer to the other parties' pleadings, whether comments or reply comments, simply as comments inasmuch as there is no need to distinguish between comments and reply comments except in the case of ARINC. Cessna filed comments simply to indicate its agreement with the proposals set forth in the *FNPRM*, without further elaboration. See Cessna Comments at 1.

### III. SECOND REPORT AND ORDER

#### A. Universal Access Transceiver Technology

7. *Background.* The Commission proposed in the *FNPRM* to amend the Part 87 rules to accommodate UAT use of the 978 MHz frequency.<sup>17</sup> UAT is a datalink technology that has been developed to provide Automatic Dependent Surveillance – Broadcast (ADS-B) Service and other services.<sup>18</sup> It has been field-tested extensively in recent years, and RTCA, Inc. (RTCA)<sup>19</sup> has developed Minimum Operational Performance Standards (MOPS) for the UAT datalink.<sup>20</sup> Based on this information, the Commission proposed specific rules, set forth in Appendix B of the *FNPRM*, authorizing UAT operations on the frequency 978 MHz, but it also asked interested parties to address the preclusive effect, if any, that such a rule change could have on other services, including the possibility of harmful interference to other services.<sup>21</sup> The Commission also asked parties to consider whether the Part 87 rules alone need to be amended to accommodate UAT, or whether there is also a need to adopt corresponding amendments to the Section 2.106<sup>22</sup> Table of Frequency Allocations.<sup>23</sup>

8. *Discussion.* We agree with the proponents of UAT that the Part 87 rules should be amended to permit the use of the frequency 978 MHz for UAT-based communications.<sup>24</sup> The provision of ADS-B and other services on a UAT platform would clearly benefit aviation safety. Garmin, the only commenter addressing the possible preclusive effects of UAT operations on other services, indicates that the authorization of UAT as proposed would have no detrimental effect on the operation of other equipment, including equipment installed on the same aircraft.<sup>25</sup> This conclusion is buttressed by the extensive empirical data that have been obtained through the field-testing of UAT in the FAA Alaska Region and at several sites within the continental United States, including the FAA Technical Center near Atlantic City, New Jersey, NASA's Runway Incursion Prevention System test bed at Langley, Virginia, and the Dallas-Ft. Worth Airport.<sup>26</sup> We therefore amend the Part 87 rules to allow UAT technology to be

<sup>17</sup> See *FNPRM*, 18 FCC Rcd at 21468 ¶ 77.

<sup>18</sup> ADS-B Service automatically broadcasts GPS-derived information on the location, velocity, altitude, heading, etc. of an ADS-B equipped aircraft to other ADS-B equipped aircraft and to ADS-B ground stations for distribution to air traffic control systems.

<sup>19</sup> RTCA is an FAA-sponsored association of aeronautical organizations with diverse membership. Organized in 1935 as the Radio Technical Commission for Aeronautics, RTCA today includes over 200 government, industry, and academic organizations from the United States as well as other nations, who seek technical solutions to problems involving the application of electronics and telecommunications to aeronautical operations. The findings of RTCA are in the nature of recommendations to all organizations concerned. While RTCA is not a government agency, its Special Committees act under the Federal Advisory Committee Act and its findings and recommendations are often adopted and turned into policy by government agencies.

<sup>20</sup> See Minimum Operational Performance Standards for Universal Access Transceiver (UAT) Automatic Dependent Surveillance Broadcast (ADS-B), RTCA/DO-282 (RTCA, Inc. 2002) (RTCA DO-282).

<sup>21</sup> See *FNPRM*, 18 FCC Rcd at 21468 ¶ 77.

<sup>22</sup> 47 C.F.R. § 2.106.

<sup>23</sup> See *FNPRM*, 18 FCC Rcd at 21468 ¶ 77.

<sup>24</sup> See Garmin Comments at 1-6; ARINC Reply Comments at 1; NTIA Comments at 2.

<sup>25</sup> See Garmin Comments at 2-3. Garmin notes that maximum UAT performance can be attained only if no other high-power signals are present on 978 MHz or the adjacent frequencies, but that the UAT system is compatible with low-level transmissions on those frequencies, such as those presently authorized for radionavigation land test equipment. *Id.* at 3.

<sup>26</sup> See *FNPRM*, 18 FCC Rcd at 21468 ¶ 77.

used on the frequency 978 MHz, substantially as proposed.<sup>27</sup> Because the definition of the aeronautical radionavigation service does not authorize datalinks, we are adopting a new United States footnote to the Section 2.106 Table of Frequency of Frequency Allocations that authorizes UAT stations to operate on the frequency 978 MHz.<sup>28</sup> The new United States footnote, US400, reads as follows:

US400 The use of the center frequency 978 MHz may be authorized to Universal Access Transceiver (UAT) stations on a primary basis for the specific purpose of transmitting datalink information in support of the Automatic Dependent Surveillance – Broadcast (ADS-B) Service, Traffic Information Services – Broadcast (TIS-B), and Flight Information Services – Broadcast (FIS-B).

## **B. Aeronautical Mobile Satellite (Route) Service (AMS(R)S) Issues**

### **1. Broadening the AMS(R)S Rules to Accommodate New Systems**

9. *Background.* In response to the *NPRM*, the Commission received a number of comments urging it to modify its rules to permit use of additional systems for the provision of AMS(R)S.<sup>29</sup> Commenters also asked the Commission to authorize the use of any emission type of the licensee's choosing, and to consider eliminating all requirements, other than reporting requirements, that are specific to data rates and modulation types.<sup>30</sup> As a less favored alternative to such a far-reaching change in the

<sup>27</sup> In response to suggestions by Garmin and NTIA, we adopt rules that are slightly modified from those proposed in Appendix B of the *FNPRM*. Garmin correctly notes that there was a typographical error in the proposed emission mask for UAT. See Garmin Comments at 4. We correct that error so that Section 87.139(l)(2), as amended, will specify that UAT transmitters with an output power of five watts or more must limit their emissions "by at least 43 + 10 log (P) dB" on any frequency removed from the assigned frequency by more than 250% of the occupied bandwidth. In addition, we also revise the language of Section 87.139(l)(2)-(3), as proposed by NTIA, to make clear that spurious emissions must be measured with a bandwidth of 100 kHz. See NTIA Comments at 2-3. Garmin and NTIA also propose various station class codes and subparts to be associated with UAT in the Section 87.173(b) table of frequency allocations, and propose related additional amendments pertaining to UAT implementation. See Garmin Comments at 4-5; NTIA Comments at 3-4. We conclude, however, that amending the rules in accord with these proposals, and including references to UAT in multiple Part 87 subparts as we initially proposed, is unnecessary and might be misleading as to the intended scope of the authorization of UAT. It will suffice, we believe, to include a station class code for UAT, MA and MOU at 978 MHz in the Section 87.173(b) table, along with a reference to UAT in the remarks column. UAT will be authorized for aircraft stations (MA) as part of the aircraft station license. We also authorize UAT under the licenses for fixed ground stations as a separate and unique station class (UAT), and aeronautical utility mobile stations (MOU). We are also modifying the emission designator and authorized bandwidth proposed for Section 87.137(a) to reflect the authorized bandwidth defined in Sections 2.2.2.6 and 2.2.2.7 of RTCA DO-282. (RTCA DO-282 uses the term "authorized bandwidth" interchangeably with the term "occupied bandwidth." Compare RTCA DO-282 Figure 2-2 with RTCA DO-282 § 2.2.2.7.) Finally, we add a definition of UAT to Section 87.5 of the Commission's Rules, 47 C.F.R. § 87.5.

<sup>28</sup> We find that a footnote of this kind is necessary because UAT signals are data streams transmitted from, e.g., aircraft or ground-based radar systems, while the 960-1164 MHz band is allocated only to the aeronautical radionavigation service. We therefore disagree with commenters who do not see any need to amend the Table of Frequency Allocations. See Garmin Comments at 3-4; NTIA Comments at 2. By definition, a data transmission is not considered a radionavigation application. Radionavigation must be accomplished by obtaining information by means of the propagation properties of radio waves. See 47 C.F.R. § 2.1. The Commission made a similar determination when it recently adopted footnote US343, which authorizes another type of datalink operation (DGPS stations) in the bands 108-117.975 and 1559-1610 MHz. See *Report and Order*, 18 FCC Rcd at 21457 ¶¶ 51-52.

<sup>29</sup> See, e.g., Boeing Comments [to the *NPRM*] at 9-10; ARINC/ATA Reply Comments [to the *NPRM*] at 7; Rockwell Collins Comments [to the *NPRM*] at 7; Inmarsat Reply Comments [to the *NPRM*] at 1.

<sup>30</sup> See *FNPRM*, 18 FCC Rcd at 21468-70 ¶¶ 78-81. Boeing contended that the Part 87 rules governing AMS(R)S had been developed primarily for aircraft that communicate via the Inmarsat satellite system and, as a result, they

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rules, commenters proposed that the Commission at least accommodate code division multiple access (CDMA) technology<sup>31</sup> for AMS(R)S.<sup>32</sup> In the *FNPRM*, the Commission requested comment on these suggestions. The Commission specifically asked interested parties to comment on the potential interference impact of modifying the AMS(R)S technical requirements.<sup>33</sup> The Commission also questioned the appropriateness of providing in Part 87 for such AMS(R)S operations in advance of the adoption of international standards for such AMS(R)S operations.<sup>34</sup> Finally, the Commission asked interested parties to consider whether additional technical requirements should be adopted for AMS(R)S, either to protect co-channel MLS operations in the 5 GHz band or for any other reason.<sup>35</sup>

10. *Discussion.* We conclude that the record in this proceeding demonstrates that the adoption of rules in Part 87 to facilitate provision of AMS(R)S by additional systems would serve the public interest.<sup>36</sup> Doing so would allow the use of a well-established licensing system to expand the options available for aircraft operators. However, we also agree with NTIA and ARINC that such rule additions should be based on international standards.<sup>37</sup> The record is unclear at this point as to whether

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contain technical restrictions that, while appropriate for Inmarsat, “have little or no relevance to satellite networks using different or more advanced technical configurations.” *Id.* at 21470 ¶ 81, citing Boeing Comments [to the *NPRM*] at 9; see also ARINC/ATA Reply Comments [to the *NPRM*] at 7.

<sup>31</sup> CDMA technology is a multiple-access technique that, by the use of multiple spreading-codes, permits several users to simultaneously make use of the same spectrum.

<sup>32</sup> See *FNPRM*, 18 FCC Rcd at 21469 ¶ 79.

<sup>33</sup> *Id.* at 21469 ¶ 78. The *FNPRM* mistakenly referred to the VHF AMS(R)S band as the frequency band under consideration for a relaxation of technical requirements. We clarify that the intent was only to consider such relaxation with respect to the 1.6 GHz, 2 GHz, and 5 GHz bands, along with the frequency bands already designated for AMS(R)S in Part 87, *i.e.*, the 1545-1559 MHz and 1646.5-1660.5 MHz bands. We agree with commenters that the VHF band is too congested to permit expanded AMS(R)S operations. See ARINC Comments at 1; NTIA Comments at 5; Rockwell Collins Comments at 3-4. In fact, in the *Second Further Notice of Proposed Rule Making*, we propose to delete a footnote in the Table of Frequency Allocations for the purpose of prohibiting any AMS(R)S operations in the VHF band, even on a secondary basis. See ¶ 33, *infra*.

<sup>34</sup> See *FNPRM*, 18 FCC Rcd. at 21470 ¶ 80.

<sup>35</sup> *Id.* at 21470-71 ¶ 82. The Commission also invited comment in the *FNPRM* as to whether there was a need to amend the Part 87 Rules to better accommodate TDMA emissions in the aeronautical VHF band. See *FNPRM*, 18 FCC Rcd at 21469 ¶ 79. We received no comments suggesting a need for any such amendment, and we continue to believe that regulatory provisions adopted by the Commission in 2001 adequately accommodate TDMA emissions in the VHF band. See Amendment of Parts 2 and 87 of the Commission’s Rules to Accommodate Advanced Digital Communications in the 117.975-137 MHz Band and to Implement Flight Information Services in the 136-137 MHz Band, *Report and Order*, WT Docket No. 00-77, 16 FCC Rcd 8226, *reconsideration granted in part*, *Memorandum Opinion and Order*, WT Docket No. 00-77, 17 FCC Rcd 360 (2001) (*FIS-B Order*).

<sup>36</sup> See, *e.g.*, Boeing Comments at 2-3; Globalstar Comments at 2-3; Iridium Comments at 5-6; Rockwell Collins Comments at 3-4. These commenters request that the Commission authorize the use of any AMS(R)S equipment that has been approved by the FAA pursuant to TSO-C159, the FAA’s Technical Standard Order Supporting Avionics for Next Generation Satellite Systems (NGSS). See FAA TSO-C159, Avionics Supporting Next Generation Satellite Systems (NGSS) (Sept. 20, 2004) (TSO-C159). TSO-C159 was a proposed standard when the parties filed comments in response to the *FNPRM*. It was subsequently adopted by the FAA after the comment and reply comment periods in this proceeding closed, effective September 20, 2004. See 69 Fed. Reg. 35127 (June 23, 2004); [http://www.airweb.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgtso.nsf/MainFrame?OpenFrameSet](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgtso.nsf/MainFrame?OpenFrameSet). TSO-C159 incorporates by reference the RTCA MOPS for NGSS. See TSO-C159 § 3.c. (requiring compliance with RTCA/DO-160D, “Environmental Conditions and Test Procedures for Airborne Equipment,” dated July 29, 1997, including Change 1, dated December 14, 2000, Change 2, dated June 12, 2001, and Change 3, dated December 5, 2002).

<sup>37</sup> See NTIA Comments at 5-6; ARINC Reply Comments at 2.



such standards are sufficiently advanced to permit adoption of such rules. NTIA specifically argues that the Part 87 rules should not be amended at this time to broaden their applicability to satellite systems other than the Inmarsat system because the International Civil Aviation Organization (ICAO) has not yet adopted Standards and Recommended Practices (SARPs) for such AMS(R)S operations.<sup>38</sup> Other commenters disagree.<sup>39</sup> Furthermore, in light of market developments occurring since the initiation of this proceeding, including the abandonment of plans for several proposed MSS systems,<sup>40</sup> as well as the emergence of Ku-band Aeronautical Mobile-Satellite Service (AMSS systems),<sup>41</sup> we conclude that it would be prudent to seek additional comment on this issue, and we do so in the *Second Further Notice of Proposed Rule Making*.<sup>42</sup>

## 2. Licensing Under Part 87

11. *Background.* In the *Report and Order*, the Commission considered whether it should regulate and license AMS(R)S operations in the 1.6 GHz and 5 GHz bands under Part 87, just as it already does with respect to AMS(R)S operations in the 1545-1559 MHz and 1646.5-1660.5 MHz bands.<sup>43</sup> Although commenters unanimously favored such an amendment, the Commission decided that it should defer acting on this matter until related AMS(R)S issues were addressed in another rulemaking proceeding.<sup>44</sup> The Commission observed that the commenters, notwithstanding their unanimity with respect to adding the 1.6 GHz and 5 GHz bands to Part 87, were deeply divided as to whether the Commission should also mandate priority and pre-emptive access for AMS(R)S communications in the 1.6 GHz and 5 GHz bands, as it is now mandated in the 1545-1559 MHz and 1646.5-1660.5 MHz bands pursuant to footnote US308 to the Table of Frequency Allocations.<sup>45</sup> The Commission reasoned that it should defer a decision on this matter until after it addressed certain proposals concerning AMS(R)S that

<sup>38</sup> See NTIA Comments at 5-6. ICAO is an international body, operating under the auspices of the United Nations, that develops standards and recommended practices for international application in civil air navigation. Its recommendations, in part, serve as the basis for the Aviation Radio Service rules. See 47 C.F.R. § 87.1(a)(3). See also ARINC Comments at 2 (referencing RTCA, ICAO, and AEEC).

<sup>39</sup> See note 36, *supra*.

<sup>40</sup> See The Boeing Co., *Order and Authorization*, 18 FCC Rcd 12317 (OET/Int'l. Bur. 2003) (granting Boeing's request to modify its license for a 2 GHz MSS system to change from a non-geostationary system to a single geostationary satellite); Commission Invites Comments Concerning Use of Portions of Returned 2 GHz Mobile Satellite Service Frequencies, *Public Notice*, IB Docket No. 05-220, FCC 05-133, at 1 (rel. June 29, 2005) (noting the surrender of 2 GHz licenses, including Boeing's).

<sup>41</sup> See Use of Aeronautical Mobile Satellite Service Earth Stations in Frequency Bands Allocated to the Fixed Satellite Service, IB Docket No. 05-20, *Notice of Proposed Rule Making*, 20 FCC Rcd 2906 (2005).

<sup>42</sup> See para. 30, *infra*.

<sup>43</sup> See *Report and Order*, 18 FCC Rcd at 21439-40 ¶¶ 12-14.

<sup>44</sup> The Commission stated in the text of the *Report and Order* that it was "declin[ing] to amend the Rules to provide the additional AMS(R)S allotment in Part 87 or expand the reach of footnote US308," *id.* at 21440 ¶¶ 15-16, citing *Above 28 MHz NPRM*, 17 FCC Rcd at 19763 ¶¶ 17-18, but the Final Rules Appendix in the *Report and Order* inadvertently amended Section 87.187(q) of the Commission's Rules, 47 C.F.R. § 87.187(q), to provide for Part 87 licensing of AMS(R)S in the 1.6 GHz and 5 GHz bands, with priority and preemptive access. We accordingly take this opportunity to rectify that error by amending Section 87.187(q) to restore it to the *status quo ante*.

<sup>45</sup> *Id.* Footnote US308, 47 C.F.R. § 2.106 n.US308, specifies, "In the frequency bands 1549.5-1558.5 MHz and 1651-1660 MHz, the Aeronautical-Mobile-Satellite (R) requirements that cannot be accommodated in the 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz and 1660-1660.5 MHz bands shall have priority access with real-time preemptive capability for communications in the mobile satellite service. Systems not interoperable with the aeronautical mobile-satellite (R) service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the mobile-satellite service."

had been raised in the Notice of Proposed Rule Making in ET Docket No. 02-305,<sup>46</sup> which was adopted after the release of the *NPRM* in this WT Docket No. 01-289 proceeding.<sup>47</sup> On November 4, 2003, the Commission released a *Report and Order* in ET Docket No. 02-305, in which it expanded the primary allocation in the bands 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz, and 1660-1660.5 MHz from AMS(R)S to all services within the MSS, while preserving the status of AMS(R)S.<sup>48</sup>

12. When it deferred a decision on whether to incorporate the 1.6 GHz and 5 GHz frequency bands into the Part 87 rules, the Commission in the *FNPRM* invited comment on whether it should amend Part 87 to permit the provision of AMS(R)S in any band allocated for MSS, and specifically whether it should add the 2 GHz MSS band to Part 87 with a designation for AMS(R)S.<sup>49</sup> Boeing had requested this rule change, arguing that it would be consistent with a Commission policy that AMS(R)S is a type of AMSS, and that AMSS in turn is a type of MSS.<sup>50</sup>

13. *Discussion.* We agree with the majority of the commenters<sup>51</sup> that it would serve the public interest to provide for the licensing of the 1.6 GHz, 2 GHz, and 5 GHz bands for AMS(R)S under Part 87. As a preliminary matter, we note that providing for Part 87 licensing of AMS(R)S in the 1.6

<sup>46</sup> In the *Above 28 MHz NPRM*, the Commission proposed to establish a primary MSS allocation in the bands 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz, and 1660-1660.5 MHz, and to delete as superfluous the AMS(R)S allocations in the bands 1549.5-1558.5 MHz and 1651-1660 MHz. See *Above 28 MHz NPRM*, 17 FCC Rcd at 19763 ¶¶ 17-18. Given the pendency of these ET Docket No. 02-305 proposals, the Commission reasoned that it would be premature, in the instant proceeding, to create a new Part 87 designation for AMS(R)S in the 1.6 GHz and 5 GHz bands or to extend the protections of priority and preemptive access to AMS(R)S operations in those bands. See *FNPRM*, 18 FCC Rcd at 21440 ¶ 16. The Commission noted, in this regard, that adding an allocation for AMS(R)S in the 1.6 GHz and 5 GHz bands under Part 87 was being considered primarily in order to make the regulatory treatment of AMS(R)S in these bands more consistent with the regulatory treatment of AMS(R)S in the frequency bands already covered by Part 87, i.e., the 1545-1559 MHz and 1646.5-1660.5 MHz bands. *Id.* It therefore made sense to wait to see if the decisions taken in ET Docket No. 02-305 would materially change the regulatory treatment of the latter bands.

<sup>47</sup> See *Report and Order*, 18 FCC Rcd at 21440 ¶ 16.

<sup>48</sup> See Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise Update the Rules in this Frequency Range, *Report and Order*, ET Docket No. 02-305, 18 FCC Rcd 23426, 23427 ¶ 2 (2003) (*Above 28 MHz Report and Order*). The Commission explained that "the effect of this action is that the bands 1545-1559 MHz and 1646.5-1660.5 MHz will be made available to all types of MSS communications on a primary basis, rather than segmented for specialized use. This action permits more efficient use of this radio spectrum and facilitates the expansion of MSS use globally." *Id.*

<sup>49</sup> See *FNPRM*, 18 FCC Rcd at 21471 ¶ 83.

<sup>50</sup> See Boeing Comments [to *NPRM*] at 5, citing Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, *Report and Order*, IB Docket No. 99-81, 15 FCC Rcd 16127, 16155 ¶ 64 (2000); The Boeing Company, Concerning Use of the 1990-2025/2165-2200 MHz and Associated Frequency Bands for a Mobile-Satellite System, *Order and Authorization*, 16 FCC Rcd 13691, 13704 ¶ 36 (IB 2001). (Although Boeing had referred to the 1990-2025 MHz band as the MSS 2 GHz band that should be designated for AMS(R)S under Part 87, the Commission pointed out in the *FNPRM* that all but the 2000-2020 MHz portion of that band had been reallocated for new fixed and mobile services, including Advanced Wireless Services, after Boeing had filed its comments. See *FNPRM*, 18 FCC Rcd at 21471 ¶ 83 n.298, citing Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, *Third Report and Order*, *Third Notice of Proposed Rule Making and Second Memorandum Opinion and Order*, ET Docket No. 00-258, 18 FCC Rcd 2223, 2238 ¶ 28 (2003).

<sup>51</sup> See, e.g., Boeing Comments at 4; ARINC Comments at 2; ARINC Reply Comments at 1; Globalstar Comments at 4; Rockwell Collins Comments at 4; see also Iridium Comments at 3-4 (confining discussion to the 1.6 GHz band).

GHz, 2 GHz, and 5 GHz bands is in keeping with the Commission's policy that AMS(R)S may be provided in any frequency band allocated for MSS.<sup>52</sup> We believe it would be inconsistent with this policy determination to license AMS(R)S under Part 87 in some but not all of the frequency bands allocated for MSS.<sup>53</sup> In addition, designating the 1.6 GHz, 2 GHz, and 5 GHz frequency bands for AMS(R)S under Part 87 will permit the licensing of AMS(R)S aircraft earth stations to the aircraft operator.<sup>54</sup> We note that several commenters address the relationship between blanket licensing of aeronautical mobile earth stations under Part 25 of the Commission's Rules<sup>55</sup> and earth station licensing under Part 87.<sup>56</sup> Several blanket authorizations have been issued.<sup>57</sup> We disagree with comments<sup>58</sup> that suggest that blanket licensing of the earth stations is inherently inconsistent with Article 29 of the 1944 Convention on International Aviation (the Chicago Convention), which requires every aircraft in international flight to carry a radio license for all radio apparatus installed on the aircraft.<sup>59</sup> The Chicago Convention does not specify the particular form in which an authorization must be issued, or that all radio apparatus on an aircraft must be listed in a single document, but instead simply requires that an aircraft carry documentary proof that its radio facilities are duly authorized. We intend to continue to provide the option of Part 25 blanket licensing for aircraft terminals. However, as noted above, we nonetheless believe that the operators of these earth stations also should have the option of licensing under Part 87, and that Part 87

<sup>52</sup> The *FNPRM* specifically acknowledged that "the Commission has indeed determined that AMS(R)S is a type of [AMSS], and that AMSS is a type of MSS." See *FNPRM*, 18 FCC Rcd at 21471 ¶ 83. This view of AMS(R)S as subsumed under MSS underlies the Commission's more recent decision in the *Above 28 MHz Report and Order* to replace allocations for AMS(R)S with generic MSS allocations in order to "enhance flexibility and efficiency" in these bands. See *Above 28 MHz Report and Order*, 18 FCC Rcd at 23434 ¶ 20.

<sup>53</sup> See Boeing Comments at 4.

<sup>54</sup> See ARINC Comments at 2.

<sup>55</sup> See 47 C.F.R. 25.1 *et seq.*

<sup>56</sup> There are conflicting views in the record as to whether blanket licensing of AMS(R)S stations to the satellite system operator pursuant to the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding (GMPCS-MoU) provides an adequate alternative to Part 87 licensing of AMS(R)S stations. Compare ARINC Reply Comments at 2 (stating that "blanket licensing of mobile earth terminals by the satellite service provider operating under the GMPCS regime ... is unsatisfactory and potentially in violation of Article 29 of the Chicago Convention...") with Globalstar Comments at 3 n.5 (contending that the Chicago Convention licensing requirement "does not bar the use of aviation radio services provided over commercial MSS systems" and observing that the Commission's Rules allow an airline, for example, to obtain a blanket license for earth stations to be operated on aircraft in coordination with the MSS system operator). GMPCS refers to all communication services provided directly to end users by any satellite system (global or otherwise), regardless of whether the users' terminals are mobile or fixed. See 1998 Biennial Regulatory Review – Amendment of Parts 2, 25, and 68 of the Commission's Rules to Further Streamline the Equipment Authorization Process for Radio Frequency Equipment, Modify the Equipment Authorization Process for Telephone Terminal Equipment, Implement Mutual Recognition Agreements and Begin Implementation of the Global Mobile Personal Communications by Satellite (GMPCS) Arrangements, *Report and Order*, GEN Docket No. 98-68 13 FCC Rcd 24687, 24688 ¶ 1 n.2 (1998); Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements, *Second Report and Order*, IB Docket No. 99-67, 18 FCC Rcd 24423, 24427 ¶ 7 (2003).

<sup>57</sup> See, e.g., The Boeing Company, *Order and Authorization*, 16 FCC Rcd 22645 (OET/Int'l. Bur. 2001); ARINC Incorporated, *Order and Authorization*, 20 FCC Rcd 7553 (OET/Int'l Bur. 2005).

<sup>58</sup> See ARINC Comments at 2.

<sup>59</sup> See Convention between the United States of America and other governments respecting international civil aviation, T.I.A.S. No. 1591, 61 Stat. 1180, 1189, Article 29 (1944) (Chicago Convention). Article 29 provides that "Every aircraft of a contracting State, engaged in international navigation, shall carry the following documents in conformity with the conditions prescribed in this Convention: ... (e) If it is equipped with radio apparatus, the aircraft radio station license; ...."

licensing may be particularly important for aircraft earth stations providing safety-related services. We believe that providing for Part 87 as well as Part 25 licensing of aeronautical mobile earth stations best comports with the goals of promoting regulatory parity (by avoiding differential licensing treatment of AMS(R)S operations based solely on the frequency bands used) and providing clear licensing guidance to the aviation industry.

14. We believe, however, that we should first resolve the issues raised in this proceeding regarding AMS(R)S operational flexibility, as well as priority and preemptive access, before commencing such Part 87 licensing. We accordingly will defer implementing this policy decision to provide for Part 87 licensing of AMS(R)S operations across all frequency bands in which AMS(R)S can be provided until resolution of the related AMS(R)S flexibility and priority issues. We emphasize that it is not our intent to revisit this particular decision in the *Second Further Notice of Proposed Rule Making*. Rather, we will further examine in the *Second Further Notice of Proposed Rule Making* only issues regarding AMS(R)S operational flexibility and, as discussed *infra*, AMS(R)S priority and preemptive access, based on the premise that AMS(R)S operations in all frequency bands may be licensed under Part 87. Until those associated issues are resolved, providing for Part 87 licensing of AMS(R)S in the 1.6 GHz, 2 GHz, and 5 GHz bands would be of little benefit, and could be counterproductive if, for example, it were necessary to modify a significant number of Part 87 AMS(R)S licenses issued in the interim, to reflect the Commission's ultimate resolution of these issues.

### 3. Priority and Preemptive Access

15. *Background.* Commenters are uniformly in agreement that AMS(R)S systems must provide means for ensuring that critical safety messages are completed immediately, and are not delayed due to competing communications traffic. Commenters disagree, however, as to the specific regulatory provisions needed to achieve this goal.<sup>60</sup> A number of parties argue that priority and preemptive access provisions currently applicable to AMS(R)S communications in the 1545-1559 MHz and 1646.5-1660.5 MHz bands<sup>61</sup> should be applied without change to AMS(R)S communications in the 1.6 GHz, 2 GHz, and 5 GHz bands.<sup>62</sup> Other parties argue that those existing provisions are not appropriate for the three

<sup>60</sup> In the *Report and Order*, the Commission deferred resolution of this issue until after it resolved related AMS(R)S allocation and regulatory issues in ET Docket No. 02-235, the *Above 28 MHz* proceeding. See *Report and Order*, 18 FCC Rcd at 21440 ¶ 16. Subsequently, in the *Above 28 MHz Report and Order*, the Commission concluded that it should retain footnote US308 to the Section 2.106 Table of Frequency Allocations without change, thereby preserving the mandate for AMS(R)S priority and preemptive access in the 1545-1559 MHz and 1646.5-1660.5 MHz bands. See *Above 28 MHz Report and Order*, 18 FCC Rcd at 23434 ¶ 19. It did so despite strong objections to retention of the footnote by Boeing and Inmarsat Ventures, plc, that were based in part on a concern that footnote US308 implicitly requires an intersystem preemptive capability that is infeasible for MSS operators. *Id.* at 23433 ¶ 18. Instead, the Commission agreed with another commenter in the proceeding, Mobile Satellite Ventures Subsidiary, LLC (MSV), which noted that footnote US308 has been in existence for many years and is reasonably well-understood, and asserted that deletion of the footnote would introduce uncertainty without any countervailing benefits. *Id.* at 23433-34 ¶¶ 18-19. MSV also disputed the notion that footnote US308 requires *intersystem* preemption. *Id.* at 23433 ¶ 18.

<sup>61</sup> See 47 C.F.R. § 2.106 n.US308.

<sup>62</sup> See NTIA Comments at 4-5; ARINC Reply Comments at 2-3. NTIA and ARINC continue to argue that mandatory priority and preemptive access for AMS(R)S communications is essential to public safety. According to NTIA, a Commission mandate for AMS(R)S priority and preemptive access "is crucial to protect safety-of-life communications from potential life threatening delays caused by a lack of an available channel." NTIA Comments at 4. ARINC asserts that without a legal basis for preempting public correspondence for critical safety and operational communications, exclusive reliance on bilateral contractual arrangements to provide priority and preemptive access could lead to disparate treatment of AMS(R)S in different areas of the world, and a given civil aviation authority could conceivably reject the treatment of AMS(R)S provided for in a contract negotiated by

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additional AMS(R)S bands.<sup>63</sup>

16. *Discussion.* While the additional comments filed in response to the *FNPRM* have assisted us in sharpening the issues, we conclude that the record does not provide a firm basis for resolving this issue. We therefore seek additional comment in the *Second Further Notice of Proposed Rule Making* on any regulatory provisions concerning priority and preemptive access, including international regulatory provisions, that may be necessary in connection with AMS(R)S operations in the 1.6 GHz, 2 GHz, and 5 GHz frequency bands. For example, proponents of priority and preemptive access in these bands have not adequately addressed why it is essential to mandate such priority and preemptive access in the Commission's Rules although it is not mandated under the international *Radio Regulations*. The ITU, like the Commission, mandates priority and preemptive access for AMS(R)S communications in the 1545-1559 MHz and 1646.5-1660.5 MHz bands, but it has not chosen to mandate such priority and preemptive access in the 1.6 GHz, 2 GHz, and 5 GHz frequency bands, a circumstance that would seem to undermine claims that providing for AMS(R)S priority and preemptive access in the latter bands is clearly essential to aviation safety. On the other hand, the opponents of a Commission mandate for AMS(R)S priority and preemptive access in these frequency bands do not explain in any detail the nature of the burden that such a mandate would arguably impose on them.<sup>64</sup> In addition, parties on both sides of the issue to date have not discussed in great detail the potential impact of an AMS(R)S priority and preemptive access requirement on other critical uses of MSS systems, such as homeland security and defense. Because we believe the current record does not sufficiently address these questions, and because we are deferring adoption of Part 87 rules to provide for licensing of AMS(R)S in the 1.6 GHz, 2 GHz, and 5 GHz frequency bands until resolution of other issues, we have determined to request further comment in the *Second Further Notice of Proposed Rule Making* to supplement the existing record with respect to priority and preemptive access.<sup>65</sup>

### C. Former Civil Air Patrol (CAP) Frequencies

17. *Background.* In the *Report and Order*, the Commission removed all Part 87 references to

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another civil aviation authority in a different jurisdiction, thereby complicating air commerce. See ARINC Reply Comments at 3.

<sup>63</sup> See Boeing Comments at 4-7; Iridium Comments at 4-5. These MSS providers argue that a mandate for AMS(R)S priority and preemptive access places an unnecessary burden on them since other mechanisms, such as FAA regulations, international standards and/or contractual arrangements, can ensure that priority and preemptive access will be provided to AMS(R)S communications.

<sup>64</sup> Given the opponents' assertions that priority and preemptive access would be provided to AMS(R)S communications in any event, by virtue of FAA requirements, international standards, and/or contractual arrangements, it is not clear why a Commission requirement for AMS(R)S priority and preemptive access would be more burdensome than the same requirement imposed by other mechanisms, especially since footnote US308 does not compel AMS(R)S providers to follow any particular technical protocol in providing such priority or preemptive access. For example, Boeing says that the MOPS incorporated by reference in the FAA's NGSS TSO clearly indicate that AMS(R)S systems must have the technical capability to provide priority and preemptive access for safety communications. According to Boeing, the MOPS create a regulatory obligation, enforceable by the FAA, which is applicable to any satellite system providing AMS(R)S in the bands covered by the MOPS. "Therefore," Boeing argues, "no need exists for the Commission to adopt 'duplicative' regulations addressing priority and preemptive access for emergency AMS(R)S communications in MSS spectrum allocations." See Boeing Comments at 5; accord Globalstar Comments at 3-4.

<sup>65</sup> See para. 32, *infra*.

the CAP as obsolete.<sup>66</sup> Among the other rule amendments it adopted to this end, the Commission removed references to the CAP from the Remarks column in the Section 87.173(b) frequency table<sup>67</sup> and, as an interim measure, designated the former CAP frequencies as reserved.<sup>68</sup> In the *FNPRM*, the Commission asked commenters whether these frequencies should no longer be listed in Section 87.173(b) or whether some or all of the frequencies should be reallocated to other Part 87 services.<sup>69</sup>

18. *Discussion.* We will remove all references to the former CAP frequencies from the Section 87.173(b) table because the frequencies are not currently available for assignment for aeronautical mobile radio service. NTIA supports this proposal.<sup>70</sup> ARINC agrees that most of the former CAP frequencies should be deleted from the table, but favors retention of the three 26 MHz channels formerly designated for CAP use – 26618.5 kHz, 26620 kHz, and 26621.5 kHz – in reserved status.<sup>71</sup> ARINC explains that it “recently had inquiries about channels in the 25-26 MHz region in support of HF datalink.”<sup>72</sup> It therefore asks that we maintain the three 26 MHz channels in the Section 87.173(b) table as reserved and “explore the reallocation of these frequencies to the Aeronautical Mobile Service.”<sup>73</sup> We decline to do so because, as ARINC concedes, these 26 MHz channels are no more available for aeronautical mobile applications than the 4 MHz channels formerly designated for CAP stations, so we see no sustainable rationale for treating the 26 MHz frequencies differently in this respect. In any event, we can add the 26 MHz frequencies back to the table if they are reallocated to an aeronautical service, whether to support an HF datalink or otherwise, and our removal of the frequencies from the Section 87.173(b) table at this time does not preclude or prejudice the possibility of such a reallocation in the future.

#### **D. Removal of the Radionavigation Allocation in the Ku-Band**

19. Based on information submitted by Boeing<sup>74</sup> indicating that there are no present or planned uses of the Ku-band (14.0-14.5 GHz) for radionavigation service in ITU Region 2,<sup>75</sup> the Commission proposed in the *FNPRM* to remove the Ku-band allocations for radionavigation from the

<sup>66</sup> See *Report and Order*, 18 FCC Rcd at 21454-55 ¶¶ 46-47. The Commission concluded that Part 87 references to the CAP were obsolete because there were no outstanding licenses for CAP stations, the Commission has no formal relationship with the CAP, and there is no need to carve out special licensing provisions for CAP stations. *Id.*

<sup>67</sup> See 47 C.F.R. § 87.173(b).

<sup>68</sup> See *Report and Order*, 18 FCC Rcd at 21454-55 ¶ 47. The frequencies in question are 2371 kHz, 2374 kHz, 4466 kHz, 4469 kHz, 4506 kHz, 4509 kHz, 4582 kHz, 4585 kHz, 4601 kHz, 4604 kHz, 4627 kHz, 4630 kHz, 26618.5 kHz, 26620 kHz, 26621.5 kHz, 143.75 MHz, 143.9 MHz, and 148.15 MHz. These are shared Government/non-Government frequencies.

<sup>69</sup> See *FNPRM*, 18 FCC Rcd at 21471-72 ¶ 84.

<sup>70</sup> See NTIA Comments at 4.

<sup>71</sup> See ARINC Comments at 3.

<sup>72</sup> *Id.*

<sup>73</sup> *Id.*

<sup>74</sup> See Boeing Comments [to *NPRM*] at 14-15. Boeing represented, among other things, that it had confirmed the absence of radionavigation operations in the band from the International Telecommunication Union (ITU), FAA, ICAO, the International Maritime Organization (IMO), and U. S. Coast Guard and Canadian Coast Guard officials, and that FAA spectrum management personnel had verified that there are no plans to use any frequencies in the 14000-14400 MHz band for aviation services in the future. *Id.*

<sup>75</sup> The ITU *Radio Regulations* categorize the world into three regions: Region 1, covering Africa, Europe, and Northern and Western portions of Asia; Region 2, covering the Americas and Greenland; and Region 3, covering Southern portions of Asia, Australia and the South Pacific. See ITU *Radio Regulations* Article S5, Section I.

Commission's Rules.<sup>76</sup> The Commission specifically proposed to remove the reference to the 14000-14400 MHz band in Section 87.187(x) of the Rules<sup>77</sup> and also to remove from the Table of Frequency Allocations<sup>78</sup> the allocation for radionavigation in the 14000-14200 MHz band.<sup>79</sup> NTIA and ARINC both agree that the Ku-band allocations for radionavigation should be eliminated.<sup>80</sup> The record demonstrates that there is no existing or anticipated need to use the Ku-band spectrum for radionavigation. We accordingly adopt this Commission proposal.<sup>81</sup>

#### E. HF Frequency Bands

20. *Background.* In the *FNPRM*, the Commission tentatively agreed with two FAA proposals pertaining to the listing of HF frequencies in Part 87.<sup>82</sup> The FAA had proposed, first, that the Commission amend the Section 87.173(b) frequency table<sup>83</sup> by replacing the existing HF frequency band listings for aeronautical mobile (route) service (AM(R)S) with entries for the encompassing band segments 2850-3025 kHz, 3400-3500 kHz, 4650-4700 kHz, 5450-5680 kHz, 6525-6685 kHz, 8815-8965 kHz, 10005-10100 kHz, 11275-11400 kHz, 13260-13360 kHz, 17900-17970 kHz, and 21924-22000 kHz.<sup>84</sup> The FAA also proposed that the Commission delete the table of international HF frequencies in Section 87.263(d) of its Rules<sup>85</sup> and replace it with a note indicating that the subject frequencies are to be used in accordance with Appendix 27 of the *ITU Radio Regulations*.<sup>86</sup> Reasoning that these rule amendments would further the goal of harmonizing the Part 87 Rules with international standards and were otherwise in the public interest, the Commission adopted the FAA's proposals as its own, and invited comment on them.<sup>87</sup>

21. *Discussion.* We adopt the first of these proposals, and amend Section 87.173(b) by replacing the identified HF frequency bands with the entries suggested by the FAA. This streamlining measure is supported by both NTIA and ARINC.<sup>88</sup> However, we conclude that we should not adopt the

<sup>76</sup> See *FNPRM*, 18 FCC Rcd at 21472 ¶ 85.

<sup>77</sup> See 47 C.F.R. § 87.187(x) (listing frequencies available for airborne radionavigation devices).

<sup>78</sup> 47 C.F.R. § 2.106.

<sup>79</sup> See *FNPRM*, 18 FCC Rcd at 21472 ¶ 85.

<sup>80</sup> See NTIA Comments at 7-8; ARINC Comments at 3-4.

<sup>81</sup> In amending the Section 2.106 Table of Frequency Allocations, we also remove footnote US292, which is associated only with the Ku-band radionavigation allocation in the Table.

<sup>82</sup> See *FNPRM*, 18 FCC Rcd at 21472-73 ¶ 86.

<sup>83</sup> See 47 C.F.R. § 87.173(b).

<sup>84</sup> See FAA Comments [to *NPRM*] at 15-16.

<sup>85</sup> 47 C.F.R. § 87.263(d).

<sup>86</sup> See FAA Comments [to *NPRM*] at 16.

<sup>87</sup> See *FNPRM*, 18 FCC Rcd at 21472-73 ¶ 86.

<sup>88</sup> See NTIA Comments at 8; ARINC Comments at 4. We also update the "Frequency or frequency band" column of the Section 87.173(b) table to reflect that some of the listed frequencies have been reallocated in other rulemaking proceedings. Specifically, we replace the frequency listing 1435-1535 MHz with a listing for 1435-1525 MHz, and we also replace the 2310-2390 MHz listing with listings for 2310-2320 MHz and 2345-2395 MHz. These amendments reflect two previous Commission decisions. First, they reflect the deletion of the aeronautical telemetry allocations from the 1525-1535 MHz and 2320-2345 MHz frequency bands in the *Above 28 MHz* rulemaking proceeding. See *Above 28 MHz Report and Order*, 18 FCC Rcd 23426 at 23434 ¶ 20 (deleting the aeronautical telemetry allocation from 1525-1535 MHz), 23443 ¶ 40 (deleting the secondary aeronautical telemetry allocation from the 2320-2345 MHz Satellite Digital Audio Radio Service band). Second, they reflect that an earlier reallocation of the 2385-2390 MHz band to the Wireless Communications Service (WCS) was rescinded, restoring

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proposal to remove the table of HF frequencies in Section 87.263(d). As ARINC observes,<sup>89</sup> retaining the individual listing of international HF frequencies in Part 87 benefits pilots in the United States by obviating the need for them to turn to the less accessible ITU *Radio Regulations* to obtain information that is of critical importance for maintaining communication with ground stations when flying the major world aviation route areas. Although there are benefits to removing the listing, such as obviating the need for the Commission to undertake a rulemaking whenever the international HF frequency plan is modified, we believe that these considerations do not outweigh the public interest in maintaining the listing of international HF frequencies to ensure that this information is readily available to pilots.<sup>90</sup>

#### F. Increased Operational Flexibility

22. At the FAA's request, the Commission proposed in the *FNPRM* to amend Section 87.421 of the Rules,<sup>91</sup> which lists the frequencies available for airport control tower stations, to provide that all four of the frequency bands listed in that rule may be used for ATC communications, including ground control communications.<sup>92</sup> In the *Report and Order*, the Commission had determined that Section 87.421 should be amended to remove a restriction that limited the use of the frequencies in one of the listed bands, the 121.6-121.95 MHz band, to communications with ground vehicles and aircraft on the ground, and to instead permit the use of those 121.6-121.95 MHz frequencies for all general purpose ATC communications, including ground control communications.<sup>93</sup> However, the *Report and Order* did not affect the other three frequency bands listed in Section 87.421 – the 118-121.4 MHz, 123.6-128.8 MHz, and 132.025-135.975 MHz frequency bands – which were neither limited to, nor expressly available for, ground control communications. The *FNPRM* proposal was intended to give the FAA the same flexibility to use these other three frequency bands for general ATC communications, including ground control communications, as the *Report and Order* had given the FAA with respect to the 121.6-121.95 MHz band.<sup>94</sup> The proposal is supported by NTIA and ARINC,<sup>95</sup> and is not opposed by any commenter. We continue to believe that giving the FAA this additional flexibility to manage air traffic control

(...continued from previous page)

the pre-existing allocation of the band for aeronautical telemetry, and that an additional allocation for aeronautical telemetry, at 2390-2395 MHz, was adopted in the *Advanced Wireless Services* rulemaking. See Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, *Seventh Report and Order*, ET Docket No. 00-258, 19 FCC Rcd 21350, 21374 ¶ 49 (rescinding the reallocation of the 2385-2390 MHz band to WCS), 21373 ¶ 47 (reallocating the 2390-2395 MHz band to aeronautical telemetry on a shared basis) (2004). We also amend Section 87.187(p), 47 C.F.R. § 87.187(p), to remove the frequency 1525.5 MHz from the list of flight testing frequencies available for shared use with flight telemetry mobile stations, to be consistent with the Commission's removal of that frequency from footnote US78 of the Table of Frequency Allocations, 47 C.F.R. § 2.106 n.US78, in 2003. See *Above 28 MHz Report and Order*, 18 FCC Rcd 23434 ¶ 20.

<sup>89</sup> See ARINC Comments at 4.

<sup>90</sup> The Commission addressed this precise issue in 1981, and determined then that it should continue listing the international HF frequencies in Part 87 as a matter of public convenience. See Amendment of Part 87 to clarify the aeronautical enroute station rules and provide two additional frequencies for use by small aircraft operating agencies, *Report and Order*, PR Docket No. 80-243, 87 FCC 2d 382, 392 ¶ 36 (1981). The record in this proceeding reflects no changed circumstances that might undermine that conclusion.

<sup>91</sup> 47 C.F.R. § 87.421.

<sup>92</sup> See *FNPRM*, 18 FCC Rcd at 21473 ¶ 87. Ground control communications are communications with ground vehicles and aircraft on the ground.

<sup>93</sup> See *Report and Order*, 18 FCC Rcd at 21447-48 ¶ 33.

<sup>94</sup> See *FNPRM*, 18 FCC Rcd at 21473 ¶ 87.

<sup>95</sup> See NTIA Comments at 8; ARINC Comments at 4.



frequencies would be beneficial in addressing the increasing congestion on those frequencies, particularly with respect to ground control communications. We amend Section 87.421 accordingly.<sup>96</sup>

**G. Emergency Watch Emergency Locator Transmitter**

23. *Background.* The Commission invited comment in the *FNPRM* on whether it should revise its rules to make generally available to manufacturers the flexibility afforded to Breitling U.S.A., Inc. (Breitling) in a waiver<sup>97</sup> granted in 2000 by the Wireless Telecommunications Bureau, Public Safety and Private Wireless Division,<sup>98</sup> to permit the certification of a new safety device that would otherwise fail to comply with several of the technical requirements applicable to ELTs.<sup>99</sup> This device for which the waiver was granted, the Breitling Emergency Watch, is intended to be used by survivors of air crashes to facilitate identification of the crash site location by search and rescue personnel. The device, which transmits on the frequency 121.5 MHz, is worn on a person's wrist, and is activated by breaking a cap and uncoiling an antenna from the watch case.<sup>100</sup> The initial waiver was granted on a one-year trial basis, subject to four conditions.<sup>101</sup> In October 2001, the one-year limitation was eliminated, and the waiver was granted for an indefinite term.<sup>102</sup> The FAA, the Aircraft Owners and Pilots Association, and other commenters supported this extension of the waiver on the ground that the Breitling Emergency Watch offers significant public safety benefits and did not create any significant interference problems during the one-year trial period.<sup>103</sup> In the *FNPRM*, the Commission questioned whether it should adopt rules that would routinely permit certification of other safety devices similar to the Breitling Emergency Watch, perhaps subject to the same safeguards as apply under the terms of the *Breitling Waiver Order*, in lieu of

<sup>96</sup> We decline to modify Section 87.421 further as proposed by NTIA. See NTIA Comments at 12. NTIA proposes that the language in the rule specifying that "antenna heights for control towers and RCOs shall be restricted to the minimum necessary to achieve the required coverage" should be moved from paragraph (c) to a new paragraph (d) (and existing paragraph (d) redesignated as paragraph (e)). *Id.* NTIA also proposes a revision to Section 87.421(b), which pertains to the assignment of frequencies in the 200-285 kHz and 325-405 kHz bands to control towers and RCOs. *Id.* NTIA offers these proposals in the form of a red-line of the existing rule, but does not offer reasons for either proposed change.

<sup>97</sup> Letter, dated July 9, 2000, from D'wana R. Terry, Chief, Public Safety and Private Wireless Division, Federal Communications Commission, to Breitling U.S.A., Inc. (*Breitling Waiver Letter*).

<sup>98</sup> The Commission reorganized the Wireless Telecommunications Bureau effective November 13, 2003, and the relevant duties of the Public Safety and Private Wireless Division were assumed by the Public Safety and Critical Infrastructure Division. See Reorganization of the Wireless Telecommunications Bureau, *Order*, 18 FCC Rcd 25414, 25414 ¶ 2 (2003).

<sup>99</sup> See *FNPRM*, 18 FCC Rcd at 21473-74 ¶¶ 88-89. An ELT is a small transmitter carried by an aircraft that is activated automatically in the event of a crash. The ELT transmits signals to alert others of the distress situation and to assist search and rescue units in "homing-in" on the aircraft. See Amendment of Parts 80 and 87 of the Commission's Rules to Authorize Additional Types of Modulation for Emergency Position Indicating Radiobeacons and Emergency Locator Transmitters in the Maritime and Aviation Services, *Report and Order*, PR Docket No. 87-133, 3 FCC Rcd 1027, 1027 ¶ 3 (1988).

<sup>100</sup> See Letter, dated April 30, 2001, from Aaron M. Panner, counsel for Breitling, to D'wana R. Terry, Chief, Public Safety and Private Wireless Division, Federal Communications Commission.

<sup>101</sup> The four conditions were (1) the Breitling Emergency Watch could be sold only to licensed pilots; (2) the device could be operated only in aviation emergency situations; (3) the device could be sold and operated on a one-year trial basis subject to immediate termination at the request of the FAA if the device caused interference to other aviation communications; and (4) Breitling would have to provide records of all purchases, including pilot license number, to the FAA every month during the one-year test period, and otherwise make the records available to the Federal Government on request. *Breitling Waiver Letter* at 3-4.

<sup>102</sup> Breitling U.S.A., Inc., *Order*, 16 FCC Rcd 18560, 18561 ¶ 6 (WTB PSPWD 2001) (*Breitling Waiver Order*).

<sup>103</sup> *Id.* at 18561 ¶ 6.

relying on the administratively more burdensome waiver process to address the suitability of such devices on a case-by-case basis.<sup>104</sup>

24. *Discussion.* The only party commenting on this issue in this proceeding is NTIA, which states only that specified safeguards should be placed on the operation of any such devices if the Commission does indeed codify rules permitting their certification.<sup>105</sup> No manufacturer, vendor or aviation industry representative has voiced support for codification of rules authorizing such devices.<sup>106</sup> We therefore conclude that the record in this proceeding does not support amending Part 87 to codify some or all of the terms of the *Breitling Waiver Order*. Moreover, given the upcoming phase-out of the use of the frequency 121.5 MHz for satellite distress alerting,<sup>107</sup> it could be inappropriate to amend our rules to authorize new equipment utilizing that frequency. We therefore see little need for rules to authorize devices similar to the Breitling Emergency Watch, and we accordingly decline to adopt such rules.

#### H. Station Identification of Aircraft Operated by Maintenance Personnel

25. In the *FNPRM*, the Commission proposed to amend Section 87.107(a) of the Rules<sup>108</sup> to authorize use of a unique station identification format for aircraft that are being moved from one airport location to another by maintenance personnel.<sup>109</sup> This proposed rule change would essentially codify the terms of a waiver of Section 87.107(a) granted by the Public Safety and Private Wireless Division in July 2002 to allow aircraft being taxied from one airport location to another by maintenance personnel to use a station identification consisting of the name of the company owning or operating the aircraft, followed by the word "Maintenance" and whatever additional alphanumeric characters the licensee deems sufficient to avoid duplicative or confusing station identifications.<sup>110</sup> The waiver was requested by the FAA because problems in communications between air traffic ground controllers and aircraft maintenance personnel moving aircraft within an airport were causing runway incursions and other threats to airport safety.<sup>111</sup> NTIA and ARINC fully support the proposed amendment of Section 87.107(a) in the name of airport safety,<sup>112</sup> and no commenter opposes it. We agree that this rule change will enhance airport safety, and so we amend Section 87.107(a) as proposed.

#### I. Aircraft Stations on Ultralight Aircraft

26. *Background.* Section 87.107(a)(2) of the Commission's Rules provides that aircraft stations on ultralight aircraft may use an FCC-assigned control number for station identification.<sup>113</sup> In the *NPRM*, the Commission stated that "[l]icensing these stations in this manner has not only become administratively burdensome, but has essentially made the Commission the registrar of ultralight aircraft

<sup>104</sup> See *FNPRM*, 18 FCC Rcd at 21474 ¶ 89.

<sup>105</sup> See NTIA Comments at 9. NTIA states that it "has no objection" to rules authorizing devices such as the Breitling Emergency Watch, provided that the specified safeguards are also adopted. *Id.*

<sup>106</sup> Breitling received its waiver on July 9, 2000. In the interim, no other entity has applied for a similar waiver or sought certification of a device similar to the Breitling Emergency Watch.

<sup>107</sup> See ¶ 43, *infra*.

<sup>108</sup> See 47 C.F.R. § 87.107(a).

<sup>109</sup> See *FNPRM*, 18 FCC Rcd at 21474-75 ¶ 90.

<sup>110</sup> See Federal Aviation Administration, *Order*, 17 FCC Rcd 13637, 13639 ¶ 7 (WTB PSPWD 2002).

<sup>111</sup> *Id.* at 13637 ¶ 3.

<sup>112</sup> See NTIA Comments at 10; ARINC Comments at 5.

<sup>113</sup> See 47 C.F.R. § 87.107(a)(2).

since the FAA does not license ultralight aircraft.”<sup>114</sup> The Commission invited comment on whether and how the individual licensing of aircraft stations operating from ultralight aircraft might be terminated without compromising the safety of life and property.<sup>115</sup> However, no parties filed comments responsive to this issue and, as a consequence, the Commission lacked a basis in the record to take remedial action of any kind in the *Report and Order*.<sup>116</sup> In the *FNPRM*, therefore, the Commission offered a specific proposal to address its concerns. It solicited comment on a proposal to simply eliminate the Section 87.107(a)(2) provision allowing FCC control numbers to be assigned to ultralight aircraft for station identification purposes, reasoning that other station identification alternatives are available for ultralight aircraft, including the acquisition of “N” numbers.<sup>117</sup>

27. *Discussion.* We continue to believe that there is no ongoing need for the Commission to issue control numbers for station identification of stations on ultralight aircraft, and we therefore amend Section 87.107 as proposed, and will cease issuing such control numbers as of the effective date of the rules adopted herein.<sup>118</sup> In recent years, the licensing staff of the Wireless Telecommunications Bureau has had very few requests for control numbers. This circumstance, coupled with the absence of any comment responsive to the Commission’s discussion of this issue in the *NPRM*, indicates that there is little demand for control numbers. Moreover, the only commenters discussing our *FNPRM* proposal agree that ultralight aircraft can acquire “N” numbers for station identification, and therefore support the proposal.<sup>119</sup>

#### J. Security Control of Air Traffic and Air Navigation Aids (SCATANA)

28. Section 87.395 of the Commission’s Rules contains provisions pertaining to SCATANA, an inter-agency agreement among the FAA, the Department of Defense (DoD), and the Commission that authorizes DoD, through the FAA, to control the operation of air navigation aids in the event of an air defense emergency.<sup>120</sup> Section 87.395 has not been amended in response to SCATANA revisions since 1985.<sup>121</sup> In the *FNPRM*, the Commission questioned whether homeland security-related developments warrant any change to SCATANA, Section 87.395, or the FCC Support Plan which sets forth the procedures to be followed when SCATANA is invoked.<sup>122</sup> We received no comments proposing any changes to SCATANA, the rule or the FCC Support Plan. ARINC states that “[t]he current FCC rules

<sup>114</sup> See *NPRM*, 16 FCC Rcd at 19026 ¶ 55.

<sup>115</sup> *Id.*

<sup>116</sup> See *Report and Order*, 18 FCC Rcd at 21466 ¶ 72.

<sup>117</sup> See *FNPRM*, 18 FCC Rcd at 21475 ¶ 90. Every aircraft in the world has a unique registration number. In the United States, this number is called an “N” number because it starts with the letter N.

<sup>118</sup> However, we grandfather existing control numbers so that ultralight aircraft operators that have acquired such numbers in the past may continue to use them for station identification purposes indefinitely.

<sup>119</sup> See NTIA Comments at 10; ARINC Comments at 5. ARINC cautions that it continues to be important that ultralight aircraft with radio stations use some form of station identification. ARINC explains that ultralight aircraft “do not operate on regular schedules or in and out of identifiable airports, and as a result, they are harder to track down should they be the source of interference. Thus some form of station identification is essential.” ARINC Comments at 5. We share ARINC’s concern, and do not mean to suggest by this action that ultralight aircraft are relieved of the station identification requirement.

<sup>120</sup> 47 C.F.R. § 87.395. Section 87.395 provides that all licensees are subject to restrictions imposed by appropriate military authorities pursuant to SCATANA and the FCC Support Plan when an Air Defense Emergency or Defense Emergency exists or is imminent. See 47 C.F.R. § 87.395(b)(1); see also 32 C.F.R. Part 245.

<sup>121</sup> See Amendment of Part 87 of the rules to reflect changes made to the Plan for the Security Control of Air Traffic and Air Navigation Aids, *Order*, FCC 85-619 (rel. Nov. 26, 1985).

<sup>122</sup> See *FNPRM*, 18 FCC Rcd at 21475-76 ¶ 92.

seem to provide sufficient flexibility to meet future emergencies.”<sup>123</sup> NTIA requests that the Commission not adopt any changes relating to SCATANA at this time, noting that the FAA and DoD are currently discussing possible revisions of SCATANA but have not yet reached any agreement.<sup>124</sup> We agree with NTIA that it would be premature to amend Section 87.395 at this juncture. We will rely on the FAA or Executive Branch agencies to inform us if the Commission’s Rules need to be revised to conform to any changes made to SCATANA.

#### IV. SECOND FURTHER NOTICE OF PROPOSED RULE MAKING

29. In this *Second Further Notice of Proposed Rule Making*, we invite comment on whether we should further amend Part 87 of the Commission’s Rules in support of our objectives of streamlining and updating the rules, maximizing operational flexibility, promoting efficient use of the spectrum, and enhancing aviation safety. We seek comment here on matters that were raised in the comments to the *FNPRM* or that were otherwise brought to the Commission’s attention and have been found, at least tentatively, to merit consideration of rule changes.<sup>125</sup> With respect to all of these matters, we ask proponents of a particular rule amendment to suggest specific implementing language for the rule(s) to be amended. Commenters should also consider if the proposed rule change may impose a new compliance burden, and, if so, whether that burden reasonably may be mitigated or eliminated either for all regulated entities or at least for small businesses and other small entities. In addition, we ask commenters to address with particularity the impact, if any, that the rule change may have on public safety and homeland security.

##### A. AMS(R)S Operations in the 1.6 GHz, 2 GHz, and 5 GHz and Other Frequency Bands

30. As discussed above, we have determined that the public interest would be served by adopting rules in Part 87 to facilitate provision of AMS(R)S by additional systems,<sup>126</sup> but that we should first resolve issues pertaining to the technical and operational requirements that should apply to such

<sup>123</sup> See ARINC Comments at 6.

<sup>124</sup> See NTIA Comments at 11.

<sup>125</sup> We are not requesting further comment on NTIA proposals to amend Sections 87.305 and 87.419 of the Commission’s Rules, 47 C.F.R. §§ 87.305, 87.419. NTIA recommends that we amend Section 87.305 to clarify that the Aerospace & Flight Test Radio Coordinating Council (AFTRCC) is the frequency coordinator for flight test frequencies, and, after consultation with AFTRCC, to provide up-to-date contact information. See NTIA Comments at 11. However, AFTRCC subsequently submitted an *ex parte* presentation expressing its view that the text of Section 87.305 can be left as is, reasoning that any changes to the AFTRCC contact information can be referenced in Commission public notices, obviating the need to amend the rule whenever the contact information changes. See Letter dated Jan. 27, 2005, from William K. Keane, counsel for AFTRCC, to Marlene H. Dortch, Secretary, FCC. We agree with AFTRCC that the rule should be left unchanged, particularly since we, like AFTRCC, are unaware of any confusion stemming from the current text. NTIA recommends that we amend Section 87.419 to specify that “[e]ach application for an RCO must be accompanied by a written statement from the appropriate FAA Regional Office approving the requested RCO operation.” See NTIA Comments at 12. The practice of the Commission’s licensing staff has been to coordinate with the FAA before granting new or major modification RCO applications. Schedule G of FCC Form 601 specifically requires the applicant to identify the FAA Regional Office that the applicant notified, along with the date of such notification. See FCC Form 601, Schedule G, item 27. Upon receiving the FCC Form 601, the licensing staff sends the frequency assignment request to the FAA for coordination, and the application is not granted until the FAA approves the frequency assignment. Since an RCO authorization cannot be granted without FAA approval, and we are aware of no problems with this current practice, we see no need to codify a requirement that RCO applicants submit a written statement from the FAA Regional Office when submitting the license application.

<sup>126</sup> See paras. 10, 13, *supra*.

AMS(R)S operations, including whether to require priority and preemptive access for AMS(R)S communications in those frequency bands, with the benefit of an augmented record.<sup>127</sup> We accordingly invite additional comment on issues pertaining to the extension of Part 87 licensing and other rules to AMS(R)S in additional frequency bands. Specifically, we ask commenters to refresh and augment the record on how to broaden the AMS(R)S rules to accommodate new AMS(R)S providers, *i.e.*, satellite systems other than Inmarsat. We seek comment on the status of the full range of applicable aviation standards, both domestically and internationally. We also seek comment on whether there may be other technical or regulatory issues, including potential interference to co-frequency or adjacent band services, related to the operations of particular systems or in particular frequency bands, that might be addressed through Part 87 licensing rules.

31. We also invite comment on whether Part 87 licensing should be considered for other frequency bands, such as Ku-Band.<sup>128</sup> We specifically seek comment on whether AMS(R)S is an appropriate service for frequency bands in which one or more of the MSS links involved is allocated on a secondary basis.

32. We also invite further comment concerning priority and preemptive access. We specifically seek comment on whether current international regulatory provisions applicable to the 1.6 GHz, 2 GHz, and 5 GHz frequency bands, or any other frequency bands, are sufficient in this regard, or whether changes to those provisions should be added to the Commission's Rules in order to better facilitate and protect AMS(R)S communications. Among the questions that should be addressed, as identified earlier,<sup>129</sup> is the nature of the burden, if any, imposed on licensees by mandating priority and preemptive access in these additional bands, and justification for imposing more stringent Part 87 requirements to protect AMS(R)S communications in these bands than the ITU has seen fit to adopt in the international *Radio Regulations*, as well as any concerns that may stem from having domestic AMS(R)S-related requirements that diverge from the international requirements.<sup>130</sup> We also seek comment on the impact of any priority and preemptive access requirements for AMS(R)S upon other critical uses, such as homeland security and defense uses, that are either currently being provided or may be provided in the future to MSS terminals.

#### **B. AMS(R)S Operations in the VHF Band**

33. Based on the comments of NTIA and ARINC,<sup>131</sup> we propose to remove from the U.S. Table of Frequency Allocations footnote 5.198, which allocates the aeronautical VHF band, 117.975-136 MHz, to AMS(R)S on a secondary basis.<sup>132</sup> NTIA and ARINC both recommend removing footnote 5.198 on the ground that the 117.975-136 MHz band is too congested to accommodate AMS(R)S operations.<sup>133</sup> We agree that the heavy use of the band for the aeronautical communications to which it is primarily

<sup>127</sup> See para. 14, *supra*.

<sup>128</sup> See ARINC Comments in IB Docket No. 05-20.

<sup>129</sup> See para. 16, *supra*.

<sup>130</sup> We note that the ITU has not established priority and preemptive access requirements for MSS allocations outside the 1535-1559 MHz and 1626.5-1660 MHz bands. Parties advocating extension of such requirements to other MSS bands in the domestic allocation table should explain what justification they perceive for introducing a discrepancy in this regard between domestic and international requirements.

<sup>131</sup> See NTIA Comments at 5; ARINC Comments at 1-2.

<sup>132</sup> See 47 C.F.R. § 2.106 n.5.198. Our proposal is limited to the United States Table of Frequency Allocations. We propose no change to the International Table of Frequency Allocations.

<sup>133</sup> See NTIA Comments at 5; ARINC Comments at 1-2. NTIA adds that it intends to propose a similar change to the ITU Table of Frequency Allocations as part of the WRC-07 preparation process. See NTIA Comments at 5 n.7.

allocated militates against providing for even limited use of the band for AMS(R)S, and we do not believe that it is essential for AMS(R)S to have access to the 117.975-136 MHz band, given that AMS(R)S may be provided in any frequency band allocated for MSS. We invite comment on our proposal to remove footnote 5.198.

### C. Channel Spacing in the Aeronautical Enroute Service

34. Frequency assignments in the aeronautical enroute service are based on 25 kHz spacing,<sup>134</sup> in keeping with the 25 kHz channelization generally used for aeronautical communications in the United States.<sup>135</sup> In Western Europe, however, nations have transitioned to 8.33 kHz channel spacing to address increasing congestion on the limited amount of VHF spectrum available for aeronautical communications.<sup>136</sup> Noting that the aeronautical enroute service is becoming increasingly congested and that channel exhaustion is nearing, ARINC submits that the Commission should consider “a judicious introduction of 8.33 kHz channeling into the United States airspace for the aeronautical enroute service only...”<sup>137</sup> According to ARINC, a reasonable transition to 8.33 kHz-spaced channels, coupled with the use of new, spectrally efficient technologies such as VHF Data Link Mode 2 (VDL Mode 2),<sup>138</sup> could provide a significant increase in the capacity of the current aeronautical enroute communications system.<sup>139</sup>

35. We request comment on whether the Commission should narrowband the aeronautical enroute service channels as proposed by ARINC. Use of 8.33 kHz channelization may enhance spectrum efficiency, accommodate the growing demand for aeronautical enroute service channels, and facilitate international interoperability. At the same time, we recognize that a transition to 8.33 kHz channelization may entail a number of difficulties, such as ensuring interoperability of equipment within the United States during the transition. We also recognize, as does ARINC, that a transition to 8.33 kHz aeronautical enroute service channels, and the attendant need to retrofit airplanes already in service, would likely impose substantial compliance costs on U.S. air carriers, a number of which are currently facing severe financial difficulties and have filed for protection under U.S. bankruptcy law.<sup>140</sup>

36. We seek comment on whether the public interest benefits of a mandatory narrowbanding

<sup>134</sup> See 47 C.F.R. § 87.263(a).

<sup>135</sup> See, e.g., 47 C.F.R. § 87.173(b).

<sup>136</sup> In the *Report and Order*, the Commission amended Section 87.137 of its Rules, 47 C.F.R. § 87.137, to permit certification of dual channel spacing transceivers that can communicate using 8.33 kHz channels as well as 25 kHz channels, as an accommodation to U.S.-registered aircraft flying to, from, or within the nations that have implemented the 8.33 kHz channel plan. See *Report and Order*, 18 FCC Rcd at 21446-47 ¶ 31. The Commission emphasized, however, that the use of 8.33 kHz channels in domestic airspace remains strictly prohibited. *Id.*

<sup>137</sup> See ARINC Comments at 6.

<sup>138</sup> VDL Mode 2 provides aircraft operators with high-capacity digital channels that can be used for both air operational control and ATC communications. According to ARINC’s website, VDL Mode 2 technology “will ultimately handle ten times the message volume per channel of today’s standard data link technology, VHF ACARS<sup>®</sup>.” See <http://www.arinc.com/news/2004/03-10-04.html>.

<sup>139</sup> See ARINC Comments at 6.

<sup>140</sup> See, e.g., Dan Reed, *Financial recovery for airlines on rocky ground*, Gannett News Service, Sept. 18, 2006, viewed on September 18, 2006 at the web site of THE DESERT SUN, Palm Springs CA, <http://www.thedesertsun.com/apps/pbcs.dll/article?AID=/20060918/BUSINESS/609180301> (noting that there is a softening demand for air travel that is “threatening the still-embryonic financial recovery of the battered airline industry”). In recent years, U.S. airlines that have filed for Chapter 11 bankruptcy protection include United Airlines, U.S. Airways, Delta Airlines, ATA Airlines, Northwest Airlines, Independence Air, Hawaiian Airlines and Aloha Airlines.

of the aeronautical enroute spectrum would outweigh the costs and difficulties that such an effort would engender. We seek estimates of projected compliance costs, with an explanation of all assumptions on which the estimates are based. Commenters should suggest the appropriate duration of the proposed transition period(s) and consider whether grandfathering provisions of some sort should be adopted to *mitigate the costs of retrofitting aircraft. We also seek comment on the specific mechanics of a transition.* Would aircraft be required to have the capability of operating on both 8.33 and 25 kHz channels within the United States for a period of time? Should transition schedules be staggered based on criteria relating to the size of the carrier or the class of aircraft? How would ground station coordination occur? Should the Commission simply establish a date certain sufficiently far into the future on which there would be a flash-cut implementation of 8.33 kHz channel spacing? What enforcement or other measures should the Commission take in the event deadlines are missed? Is there a need for a private sector entity to be designated to manage the transition? If so, how should that entity be selected and what criteria should be used in making that selection? We ask commenters to consider these matters and offer their views on the myriad of other implementation issues that will need to be addressed. Finally, since international interoperability is a significant consideration in this matter, we ask commenters to provide information regarding the implementation of 8.33 kHz spacing in the United Kingdom and Western Europe, and on whether countries in Latin America, Eastern Europe, Asia, or Africa, for example, have followed or may follow the lead of the United Kingdom and Western Europe. We also ask commenters to address whether there are alternative means, short of mandatory narrowbanding, to address congestion in this spectrum.

#### **D. Frequencies for Flight Information Services – Broadcast (FIS-B)**

37. In 2001, the Commission established rules authorizing the provision of FIS-B, a new aeronautical broadcast service that provides safety-related and flight planning data to the cockpit via a digital data link.<sup>141</sup> Four frequencies are designated for FIS-B under Section 87.187(dd) of the Commission's Rules: 136.425 MHz, 136.450 MHz, 136.475 MHz, and 136.500 MHz.<sup>142</sup> The first three of these frequencies are ATC frequencies managed by the FAA, while the fourth, 136.500 MHz, is an aeronautical operational control frequency used by ARINC. ARINC claims that the frequencies 136.475 MHz and 136.500 MHz are no longer needed for FIS-B, and the Commission should amend Section 87.187(dd) to delete the reference to 136.500 MHz.<sup>143</sup> We request comment on whether we should amend Section 87.187(dd) as proposed by ARINC. If this amendment of the rule is warranted, we question whether we should also delete the frequency 136.475 MHz from the rule, as this frequency is no more needed for FIS-B than is 136.500 MHz, according to ARINC. We also ask commenters if we need to make any related changes to the Part 87 Rules or the Section 2.106 Table of Frequency Allocations if we ultimately determine to remove one or both of the identified frequencies from the list of frequencies designated for FIS-B.

#### **E. Frequencies for Air-to-Air Use in Hawaii**

38. On September 26, 2003, the Hawaii Air Tour Safety Working Group (HATSWG) filed a petition for rulemaking asking the Commission to amend Section 87.187 of the Commission's Rules<sup>144</sup> to authorize the use of specified frequencies for air-to-air use in Hawaii.<sup>145</sup> The *HATSWG Petition*

<sup>141</sup> See *FIS-B Order*, 16 FCC Rcd at 8233 ¶ 16.

<sup>142</sup> See 47 C.F.R. § 87.187(dd). Because FIS-B is limited to uplink communications, these frequencies may not be used for transmission by aircraft.

<sup>143</sup> See ARINC Comments at 4-5. According to ARINC, the FAA awarded contracts for the provision of FIS-B to two entities, but only one has moved forward with the program. *Id.*

<sup>144</sup> See 47 C.F.R. § 87.187.

<sup>145</sup> See Hawaii Air Tour Safety Working Group, Petition for Rulemaking, RM-10824 (filed Sept. 26, 2003) (*HATSWG Petition*).

essentially asks the Commission to codify the terms of a Special Temporary Authorization (STA) granted to HATSWG by the licensing staff of the Wireless Telecommunications Bureau, effective February 1, 2002.<sup>146</sup> Under the STA, according to HATSWG, the specified frequencies have been used as traffic advisory frequencies by air-tour operators, both fixed-wing and helicopter, other commercial operators, and the general aviation community. HATSWG indicates that the consensus of the Hawaiian Islands aviation community, including the FAA Flight Standards District Office in Honolulu,<sup>147</sup> is that the specified frequencies “function well to facilitate a safe operating environment.”<sup>148</sup> The *HATSWG Petition* was placed on public notice on November 17, 2003,<sup>149</sup> and has not been opposed. We now propose to add to Section 87.187 a provision effectively codifying the terms of the STA held by HATSWG. The use of the specified frequencies for air-to-air communications in Hawaii has improved air safety, and there have been no reports of objectionable interference in the more than four years that aircraft in Hawaii have operated on these frequencies pursuant to the STA. We believe that codifying the provisions of the STA may obviate the need for HATSWG to repeatedly renew the STA, provide an added measure of certainty and stability for the Hawaiian aviation community, and facilitate publication of the frequencies in the Hawaiian Islands Aeronautical Section Chart and other official publications. We note that one of the frequencies requested by HATSWG (120.65 MHz) is within the band 117.975-121.9375 MHz, and that another of the requested frequencies (127.05 MHz) is within the band 123.5875-128.8125 MHz. Because these two frequency bands are allocated to the aeronautical mobile (R) service, while the use requested by HATSWG is within the aeronautical mobile service, it is necessary to authorize the requested use by a new United States footnote (USxxx) to the Section 2.106 Table of Frequency Allocations. We propose that footnote USxxx read as follows:

USxxx In Hawaii, the frequencies 120.65 MHz and 127.05 MHz may be authorized to non-Federal aircraft stations for air-to-air communications as specified in 47 CFR 87.187.

#### **F. Frequencies for Air-to-Air Use in the Los Angeles Area**

39. On June 17, 2004, the staff of the Wireless Telecommunications Bureau granted a request by the Southern California Airspace Users Working Group (SCAUWG) to use specified frequencies for air-to-air communications in the Los Angeles area.<sup>150</sup> SCAUWG asserted a need for additional air-to-air

<sup>146</sup> *Id.* at 1-3. HATSWG requests specifically that the Commission amend Section 87.187 to provide that (1) the frequency 120.650 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Maui; (2) the frequency 121.950 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Molokai; (3) the frequency 122.850 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Oahu; (4) the frequency 122.850 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Hawaii when aircraft are south and east of the 215 degree radial of the ITO (Hilo) VOR (*i.e.*, the 215 degree radial of very high frequency omni-directional radio range of Hilo International Airport); (5) the frequency 127.050 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Hawaii when aircraft are north and west of the 215 degree radial of the ITO (Hilo) VOR; and (6) the frequency 127.050 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the Hawaiian Island of Kauai. *Id.* at 2-3.

<sup>147</sup> The *HATSWG Petition* includes as an exhibit a letter from the FAA Flight Standards District Office endorsing the HATSWG proposal as furthering aviation safety. *Id.* at Exhibit C, Letter dated Sept. 12, 2003, from Peter E. Beckner, Manager, Honolulu Flight Standards District Office, to FCC.

<sup>148</sup> *Id.* at 2.

<sup>149</sup> See Consumer & Governmental Affairs Bureau Reference Information Center Petition for Rulemaking Filed, *Public Notice*, Report No. 2637 (CGB rel. Nov. 17, 2003).

<sup>150</sup> SCAUWG initially requested to use the frequency 122.85 MHz in “Area 1b.” See Letter dated April 26, 2004, from John F. Kenton, Co-Chairman, Southern California Airspace Users Working Group, to Kim Kleppinger, FCC (continued....)



frequencies in the delineated geographic areas because of “intensive aviation training” in those areas.<sup>151</sup> The STA was granted<sup>152</sup> after SCAUWG successfully coordinated with the FAA’s Flight Standards Division with respect to the requested use of the frequency 121.95 MHz.<sup>153</sup> To date, we have received no reports of objectionable interference stemming from use of the specified frequencies pursuant to the STA. We believe that codifying the provisions of the STA may obviate the need for SCAUWG to repeatedly renew the STA, provide an added measure of certainty and stability for the Los Angeles aviation community, and enhance aviation safety, particularly in flight training areas. Accordingly, we propose on our own motion to add to Section 87.187 a provision codifying the terms of the STA granted to SCAUWG.

#### G. Applicability of the One-Unicom-Per-Airport Rule

40. We propose to amend Section 87.215(b) of the Commission’s Rules to clarify the circumstances under which an airport is limited to a single unicom. Section 87.215(b) currently states,

Only one unicom will be authorized to operate at an airport which does not have a control tower, RCO<sup>154</sup> or FAA flight service station. At an airport which has a part-time or full-time control tower, RCO or FAA flight service station, the one unicom limitation does not apply and the airport operator and all aviation services organizations may be licensed to operate a unicom on the assigned frequency.<sup>155</sup>

The Commission has clarified in recent years that this one-unicom-per-airport rule applies whenever the airport’s unicom frequency serves as the published common traffic advisory frequency (CTAF) for the airport, even if the airport has an RCO.<sup>156</sup> The Commission explained in the *Report and Order* that the

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(SCAUWG STA Request). SCAUWG later requested a change to frequency 122.775 MHz in that area. See Letter dated June 9, 2004, from John F. Kenton, Co-Chairman, Southern California Airspace Users Working Group, to Kim Kleppinger, FCC. As so revised, the STA authorizes SCAUWG to use (1) the frequency 121.95 MHz in Area 1a (southwest of Long Beach): 33°46’ N/118°27’ W, 33°47’ N/118°12’ W, 33°40’ N/118°00’ W, 33°35’ N/118°08’ W, 34°00’ N/118°26’ W; (2) the frequency 122.775 MHz in Area 1b (San Fernando Valley): 34°22’ N/118°30’ W, 34°35’ N/118°15’ W, 34°27’ N/118°15’ W, 34°16’ N/118°35’ W, 34°06’ N/118°35’ W, 34°05’ N/118°50’ W; (3) the frequency 123.30 MHz in Area 2 (Ontario): 34°08’ N/118°00’ W, 34°10’ N/117°08’ W, 34°00’ N/117°08’ W, 33°53’ N/117°42’ W, 33°58’ N/118°00’ W; and (4) the frequency 123.50 MHz in Area 3a (Perris Valley): 33°53’ N/117°37’ W, 34°00’ N/117°15’ W, 34°00’ N/117°07’ W, 33°28’ N/116°55’ W, 33°27’ N/117°12’ W, and in Area 3b (El Toro): 33°50’ N/117°48’ W, 33°51’ N/117°41’ W, 33°38’ N/117°30’ W, 33°30’ N/117°30’ W, 33°30’ N/117°49’ W.

<sup>151</sup> See SCAUWG STA Request at 1.

<sup>152</sup> See Letter dated June 17, 2004, from Tracy Simmons, Associate Chief, Licensing Operations, Public Safety and Critical Infrastructure Division, Wireless Telecommunications Bureau, to John F. Kenton, Co-Chairman, Southern California Airspace Users Working Group.

<sup>153</sup> See 47 C.F.R. § 87.323(b) (providing that the frequency 121.950 MHz and two other frequencies – 123.300 MHz and 123.500 MHz – are available for assignment to aviation support stations used for pilot training, coordination of lighter-than-air aircraft operations, or coordination of soaring or free ballooning activities, but that applicants for 121.950 MHz must coordinate their proposal with the appropriate FAA Regional Spectrum Management Office).

<sup>154</sup> An RCO, or remote communications outlet, is an unmanned communications facility remotely controlled by air traffic personnel.

<sup>155</sup> 47 C.F.R. § 87.215(b).

<sup>156</sup> See *Report and Order*, 18 FCC Rcd at 21459 n.211; Reorganization and Revision of Part 87 of the Rules Governing the Aviation Services, *Notice of Proposed Rule Making*, PR Docket No. 87-214, 2 FCC Rcd 4069, 4070 (continued....)

purpose of Section 87.215(b) is to prevent the licensing of more than one unicom at an uncontrolled airport in the interest of public safety.<sup>157</sup> Accordingly, we clarify that the rule's statement that the limitation does not apply to airports that have a control tower, FAA flight service station (FSS), or RCO means only that the limitation does not apply to airports with a control tower, FSS, or RCO that effectively controls traffic at that airport.<sup>158</sup> An airport with an FSS or RCO may nonetheless be deemed uncontrolled if the facility does not have the capacity to issue common traffic advisories. Accordingly, multiple unicom licensees are permitted only at those airports where there is no need for a specified CTAF or the air traffic control facility frequency serves as the CTAF.<sup>159</sup> We propose to amend Section 87.215(b) to codify this clarification of the rule's intent that the one-unicom-per-airport limitation always applies at an airport where the unicom frequency is the published CTAF.

#### H. Prohibition of Applications to Assign or Transfer Control of Aircraft Licenses

41. Under the Commission's Rules, aircraft licenses, unlike most other types of wireless radio licenses, may not be assigned or transferred.<sup>160</sup> As a consequence, an entity that holds aircraft licenses among other types of wireless radio licenses that it wishes to assign or transfer to another entity may not include the aircraft licenses on the FCC Form(s) 603 it files to request authorization for the assignment or transfer of the non-aircraft licenses. Instead, the licensee must submit the aircraft licenses to the Commission for cancellation, and the entity wishing to acquire those licenses must instead apply for new aircraft licenses in its own name. Due to uncertainty as to when the applications for the new aircraft licenses will be granted, there may be a need for the applicant to request an STA to ensure that the existing aircraft radio stations may continue to be used without disruption during the interim before the new licenses are granted.

42. The prohibition on assigning or transferring aircraft licenses therefore requires applicants and Commission licensing personnel to undertake a relatively cumbersome process when control of aircraft radio station assets are to change hands, and there appears to be little public interest benefit, if any, for continuing the prohibition. The need to address this issue is underscored, moreover, by the recent bankruptcies of major U.S. air carriers and the possibility of additional airline bankruptcy filings in the future. When a major air carrier files for bankruptcy protection, the problems of working around the prohibition on the assignment or transfer of aircraft licenses are magnified both because of the large number of aircraft licenses typically involved and because of the particular timing issues that attend what the Commission deems an involuntary assignment or transfer of control of licenses.<sup>161</sup> We therefore

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¶¶ 11-12 (1987); *see also, e.g.,* Starbase Aviation Incorporated, *Order on Reconsideration*, 19 FCC Rcd 21974, 21977 ¶ 8 n.25 (WTB PSCID 2004); The Flight Department, *Order*, 18 FCC Rcd 23943, 23945 ¶ 3 (WTB PSPWD 2003); Resort Aviation Services, Inc., *Hearing Designation Order*, WT Docket No. 02-179, 17 FCC Rcd 12816, 12816 n.2 (WTB PSPWD 2002).

<sup>157</sup> *See Report and Order*, 18 FCC Rcd at 21459 n.211.

<sup>158</sup> *Id.*

<sup>159</sup> *Id.*

<sup>160</sup> *See* 47 C.F.R. § 1.948(b)(5). The only other types of wireless licenses that may not be assigned or transferred are Amateur, Ship, Commercial Operator and, except for the 218-219 MHz Service, Personal Radio Services licenses. *Id.* The Personal Radio Services generally are licensed by rule. *See generally* 47 C.F.R. Part 95. The bar on assigning or transferring Amateur and Commercial Operator licenses is a logical corollary of the requirement that applicants for such licenses pass an examination to demonstrate their qualifications. *See* 47 C.F.R. §§ 13.201 (examination requirement for Commercial Operator license applicants); 97.501 (examination requirement for Amateur Radio Service license applicants).

<sup>161</sup> Bankruptcy filings by a licensee are considered to be involuntary assignments of the licenses, generally from the licensee to the licensee as debtor-in-possession. *See, e.g.,* 47 C.F.R. § 1.948(c)(2), (g); Wireless (continued....)